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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,527

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Min-Ho Kim

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EXAMINER

TRAN, TRANG U

ART UNIT

PAPER NUMBER

2622

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/762,527	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> Trang U. Tran	<b>Art Unit</b> 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 is/are allowed.
- 6) ☒ Claim(s) 16-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 16-17 and 21 are rejected under 35 U.S.C. 102(a) as being anticipate by the admitted prior art (Fig. 3, pages 1-3 of the Specification).

In considering claim 16, the admitted prior art (Fig. 3, pages 1-3 of the Specification) discloses all the claimed subject matter, note 1) the claimed a sort circuit for receiving first and second baseband signals, the sort circuit shifting frequencies of the first and second baseband signals is met by the resampler 305 (page 2, [0008]-[0011]), 2) the claimed a removal circuit for receiving the shifted first and second baseband signals and for combining the shifted first and second baseband signals to provide a frequency-modulated signal is met by the multiplier 307 (page 3, [0012]), and 3) the claimed a symbol timing restoration circuit for measuring a timing error in related symbols of the frequency-modulated signal, for generating an address selection signal that is proportional to the timing error, in response to a carrier restoration signal, and for indicating restoration of the carrier is met by the symbol timing restoration circuit 309 (page 3, [0013]-[0014]).

In considering claim 17, the claimed wherein the sort circuit lowers the frequencies of the first and second baseband signals is met by the resampler 305 (page 2, [0008]-[0011]).

Claim 21 is rejected for the same reason as discussed in claim 16 above.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section discloses all the claimed subject matter, note 1) the claimed of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (Fig. 3, pages 1-3 of the Specification) in view of Kato et al. (US Patent No. 6,067,329).

In considering claim 18, the admitted prior art (Fig. 3, pages 1-3 of the Specification) discloses all the limitations of the instant invention as discussed in claim 16 above, except for providing the claimed wherein the removal circuit removes a direct current component from the combined shifted first and second baseband signals. Kato et al teach that since a DC offset is included in the VSB demodulation data, by removing the DC offset by the DC offset canceler 14, the VSB demodulated data only is obtained (Fig. 1, col. 3, lines 6-62). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the DC offset canceler as taught by Kato et al into the admitted prior art (Fig. 3, pages 1-3 of the Specification)'s system in

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order to remove and process the digital television signal receiver employing the VSB demodulation system.

In considering claim 19, In considering claim 18, the admitted prior art (Fig. 3, pages 1-3 of the Specification) discloses all the limitations of the instant invention as discussed in claim 16 above, except for providing the claimed further comprising a sampling rate control circuit for reducing a sampling rate of the frequency-modulated signal. Kato et al teach that after spectrum shaping and demodulation in the complex type filter 9, the Inphase data and the Quadrature data are interpolated to quarter by the first decimating circuit 10 and second decimating circuit 11, respectively, to be converted into the original signal stream (Fig. 1, col. 3, lines 6-62). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the decimator as taught by Kato et al into the admitted prior art (Fig. 3, pages 1-3 of the Specification)'s system in order to convert the digital television signal into the original signal stream.

In considering claim 20, the claimed wherein the sampling rate control circuit reduces the sampling rate of the frequency-modulated signal by at least half is met by the first decimating circuit 10 and second decimating circuit 11 (Fig. 1, col. 3, lines 6-62 of Kato et al).

Claim 22 is rejected for the same reason as discussed in claim 18 above.

Claims 23-24 are rejected for the same reason as discussed in claims 19-20, respectively.

***Allowable Subject Matter***

5. Claims 1-15 are allowed.

The independent claims 1 and 9 identifies the uniquely distinct features: “a matched filter for filtering the first and second baseband signals to control signal-to-noise ratios thereof; a sort circuit for shifting the frequencies of outputs from the matched filter; a direct current removal circuit that combines the outputs of the sort circuit and removes a direct current component from the result of combination; a sampling rate control circuit for changing the sampling rate of an output of the DC removal circuit and for outputting the result; and a sy8888mbol timing restoration circuit for measuring a timing error in related symbols of the output of the DC removal circuit and for generating the address selection signal that is proportional to the timing error, in response to a carrier restoration signal that is generated by the carrier restoration circuit and for indicating restoration of the carrier”. All references of record, either singularly or in combination, fail to anticipate or render the above underlined limitations obvious.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim (US Patent No. 7,061,996 B2) discloses vestigial sideband receiver and method for restoring carrier wave.

Markman et al. (US Patent No. 7,038,730 B2) disclose matched pulse shaping filter.

Oh (US Patent No. 6,842,488 B2) discloses VSB/QAM receiver and method.

Chen et al. (US Patent No. 6,665,355 B1) disclose method and apparatus for pilot-aided carrier acquisition of vestigial sideband signal.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571) 272-7358. The examiner can normally be reached on 9:00 AM - 6:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N. Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 14, 2008

/Trang U. Tran/  
Primary Examiner, Art Unit 2622